

Remarks and Arguments

Claims 1-7 were presented for examination. Claims 1, 2 and 4-7 have been amended.

Claims 1-7 have been rejected under 35 U.S.C. §112, second paragraph, for lack of antecedent bases in claims 1, 4 and 5. Specifically, claim 1 has been rejected for lack of an antecedent basis for the phrase “the pattern generation” originally recited in lines 8 and 10. In response, claim 1 has been amended, in lines 9, 10 and 13 to replace the phrase “the pattern generation” with “calculation of the significant patterns, correlations or classifications” which phrase finds antecedent basis in line 6.

Claim 4 was rejected for reciting the phrase “pattern recognition programs” in original lines 1-2 which phrase lacked antecedent basis. In response, claim 4 has been amended, in line 2, to replace the phrase “the pattern recognition programs” with “the pattern recognition algorithms” which phrase finds antecedent basis in line 8 of claim 1.

Claim 5 was rejected for reciting the phrases “the result list” in original lines 1-2 and the phrase “pattern recognition programs” in original lines 2-3 which phrases lacked antecedent bases. In response, claim 5 has been amended, in line 2, to delete the phrase “the result list” and to replace the phrase “pattern recognition programs with the phrase “the pattern recognition algorithms” which phrase finds antecedent basis in line 8 of claim 1 as noted above.

Claims 1 to 3, 5 and 7 are rejected under 35 U.S.C. 102(b) as anticipated by U.S. Patent No 5,412,578 (Takagi.) The examiner comments that the Takagi reference discloses all of the claimed limitations.

The present invention relates to graphic presentations of complex analytical data strings containing each a multitude of data peaks that represent different substances (for example, data strings that comprise mass spectra or chromatograms). Specifically, after execution of pattern recognition or classification algorithms, data peaks that participate significantly in the graphical display are highlighted so that the nature of these peaks, and the substances represented by these peaks, can easily be further investigated. The content of the graphical display, particularly the peaks, can be interactively accessed by the user and by the pattern recognition programs.

In contrast, the Takagi reference has a completely different objective and operates in a different manner. More particularly, a cloth is the sample to be analyzed by pattern recognition in Takagi. The pattern recognition is performed on projection histograms of an image taken from the cloth. The differences between the present invention and the Takagi disclosure are present in the claims. For example, claim 1 recites, in lines 4-5, "... (a) displaying the data of the collections of the peak-containing data strings or peak lists in graphical form..." (emphasis added). The examiner states that in Takagi "the histogram corresponds to data of the collections of data strings". From this correspondence, it follows that, in Takagi, all data strings (equivalent to the histograms) stem from the same sample. However, in the present invention, the data strings stem from different samples and are combined to a collection of data strings. See, for example, the instant specification at paragraph [02]: "In many fields of science, collections of mass spectra, optical absorption spectra, chromatograms, electrophorograms or other analytical peak-containing strings of digital data are investigated with respect to inherent patterns and correlations of such patterns with external parameters of the original samples where the data strings are acquired from."

Secondly, claim 1 recites, in step (b) "...calculating significant patterns, correlations or classifications within one or between different collections of the peak-containing data strings or the peak lists..." The examiner cites Takagi, Figures 10 and 11 and column 12, lines 58-63 as illustrating this step. However, Takagi column 3, lines 19-29, discloses that histograms are accumulated across the X axis and the Y axis of the image "are to separately obtain characteristic quantities for the vertical pattern forms and the lateral pattern forms." Thus, in Takagi any significant patterns, correlations or classifications, such as those recited in step (b) of claim 1 are only calculated within a single data string, not between data strings in a collection of strings and not between different collections of data strings as recited.

Claim 1 also recites, in lines 6-14 "...calculating significant patterns, correlations or classifications ... by pattern recognition algorithms, thereby including a determination of peaks significantly participating in the calculation of the significant patterns, correlations or classifications, and ...highlighting, in the graphical display of the peak-containing data strings or the peak lists, the peaks significantly participating in the

calculation of the significant patterns, correlations or classifications...” The examiner states that “crests” in the Takagi histograms correspond to peaks and that crests significantly participating in the pattern recognition (those that are significant for the pattern recognition) are determined by the pattern recognition algorithm (citing Takagi column 12, lines 23-27): “The pattern recognition schedule or algorithm for the present pattern form is characterized by noting the height and position of a remarkable crest within one pitch and determining the same as a key pattern position.” However, from lines 27-40 of the same paragraph, it is evident that all significant crests are predetermined in a training step prior to the operation of the pattern recognition algorithm. Significant crests are not determined by the pattern recognition algorithm itself: “FIG. 8 is a displayed screen image for determining a pattern pitch. The pattern pitch can be determined automatically or inputted by an operator. In FIG. 8, the pattern pitch determined automatically or inputted by the operator is displayed on the screen by superposing over the input screen image for confirmation. When the pitch is erroneously determined or inputted, the pattern recognition result is significantly affected thereby, therefore the superposed [sic] screen display for confirmation is important.”

Claim 1 further recites, in lines 12-14 “...highlighting, in the graphical display of the peak-containing data strings or the peak lists, the peaks significantly participating in the calculation of the significant patterns, correlations or classifications.” The examiner states that, in Takagi, peaks are highlighted in the graphical display after the pattern recognition has completed, wherein the highlighted peaks are determined by the pattern recognition algorithm to be significant for the pattern recognition. However, all of the Takagi paragraphs cited by the examiner show that significant crests are exclusively highlighted prior to the pattern recognition to allow an inspection to be made for the correct selection of recognition parameters.

Therefore, claim 1 patentably distinguishes over the cited Takagi reference. Claims 2-3, 5 and 7 are dependent, either directly or indirectly, on claim 1 and incorporate the limitations thereof. Consequently, they distinguish over the cited reference in the same manner as claim 1.

In light of the forgoing amendments and remarks, this application is now believed in condition for allowance and a notice of allowance is earnestly solicited. If the

examiner has any further questions regarding this amendment, he is invited to call applicants' attorney at the number listed below. The examiner is hereby authorized to charge any fees or direct any payment under 37 C.F.R. §§1.17, 1.16 to Deposit Account number 50-3969.

Respectfully submitted

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